

Handoll HH, Al-Maiyah MA. Surgical versus non-surgical treatment for acute anterior shoulder dislocation. Cochrane Database of Systematic Reviews 2004, Issue 1, Art # CD004325.

Design: Meta-analysis of randomized clinical trials

PICOS:

- Patient population: People with acute anterior shoulder dislocation confirmed by physical examination and imaging
- Intervention: Any surgical intervention, open or minimal access, including diagnostic arthroscopy and arthroscopic lavage
- Comparison intervention: Any non-surgical treatment intervention
- Outcomes: return to pre-injury level of activity (sports or work); recurrence or re-injury (including subsequent surgery); persistent pain; results from functional assessment such as SF-36 and validated shoulder-specific rating scales
- Study types: Any randomized or quasi-randomized trial which compared surgical and non-surgical interventions
 - o Studies in which a diagnostic arthroscopy was a component of a 'non-surgical' intervention were excluded

Study selection:

- Databases included MEDLINE, EMBASE, and CENTRAL through August 2009
 - o Reference lists and proceedings of a number of orthopedic conferences were also searched
- Two authors independently assessed articles for inclusion and extracted data from the trials, resolving any disagreements through discussion
- Risk of bias was assessed through application of the Cochrane criteria of randomization sequence generation, allocation concealment, blinding of participants, providers, and outcome assessors, attrition/completeness of follow-up, co-intervention bias, intention-to-treat analysis, baseline comparability, clear definition of inclusion/exclusion criteria, clear description of interventions, appropriate length of follow-up (one year or more), and clearly defined outcome measures
- The authors planned separate outcome analyses of patients with primary dislocations and those with recurrent dislocations; they also planned separate analyses of young to middle age adults and those not falling into this category

Results:

- Out of 11 eligible studies, 4 studies with a total of 163 patients were included in the analysis
- 3 studies were published in full in journals; 1 trial was reported only in a conference abstract, and lacked many criteria for a high quality study
- None of the trials met all the criteria for quality; all had adequate duration of follow-up, but only two had clearly described interventions and clearly defined inclusion/exclusion criteria; only one had allocation concealment, and only one had assessor blinding
- The study populations were mostly young men under 30, with the percentage of males ranging from 77% to 100%
- All of the studies included only patients with primary shoulder dislocations, so that the planned separate analysis of primary and recurrent dislocations could not be done
- Of the 4 studies, 3 employed arthroscopic repair and 1 employed arthroscopic lavage
 - o Different techniques were used in the 3 studies of arthroscopic repair: one used bioabsorbable tacks, one used K-wires, and one used a bioabsorbable implant
 - o The non-surgical interventions involved sling immobilization for varying lengths of time, from one week to four weeks
- Due to the heterogeneity of outcome measures, the pooled results were also heterogeneous, precluding pooling of outcome data and necessitating analysis for individual trials only for the outcome of return to pre-injury activity level
 - o In one study, all of the patients in both surgical and non-surgical group returned to pre-injury activity; in another, 17 of 19 surgical patients returned to activity, but only 2 of 20 non-surgical patients returned to normal activity
- Three studies were sufficiently homogeneous to permit pooling of outcome data for subsequent dislocation or subluxation (one low-quality study was excluded); the risk of redislocation for surgery was 0.32 times the risk of redislocation for non-surgery; the surgery group had a risk of subsequent surgery which was 0.22 times that of the non-surgical patients
- One study had a longer-term period of follow-up of 79 months; surgically treated patients in this group had no further redislocations after the first 24 months had passed

Authors' conclusions:

- Only four small trials with 163 patients could be found even after a comprehensive search; other systematic reviews have not located any randomized trials which were missed by this search
- There is a potential for systematic bias to compromise the validity of the evidence from the included trials, none of which had convincing control of potential bias, and caution is needed in interpreting the evidence

- Nevertheless, the results of the trials were consistent with one another and probably furnish reliable evidence that surgery reduces the risk of subsequent instability
- Because the trials had enrolled young men almost exclusively, extrapolation of the findings to other populations would be inappropriate; in one trial, they were active duty military, and in another, they were predominately athletes
- The results do support surgery for active young men in physically demanding activities who have sustained their first shoulder dislocation
- There is insufficient information to know whether surgery affects long-term outcome; the study with the 79 month follow-up only followed a limited number of patients for that long
- No guidance can be obtained for the best method of surgery; the interventions were different in all the trials

Comments:

- The studies were, as the authors say, highly heterogeneous in intervention and outcome measurement; the study with the largest effect size (redislocation in 2 of 19 surgical and in 17 of 20 non-surgical patients) was reported only in a conference abstract and was appropriately omitted from the pooled analysis of this outcome
- Even though there is a risk of bias which precludes rating the results as providing strong evidence of an advantage of surgery for primary dislocation, the advantages of surgery are likely to be present, even if their magnitude is not as great as the pooled results would indicate

Assessment: High quality meta-analysis which supports good evidence that in active young persons engaged in physical activities, a first anterior shoulder dislocation treated surgically is less likely to redislocate than a dislocation treated with sling immobilization only